



PERSPECTIVES ON DRUGS

Comorbidity of substance use and mental health disorders in Europe

Comorbidity of substance use and mental health disorders refers to the co-occurrence of a substance use disorder and another mental health disorder in the same individual. In Europe, the presence of psychiatric disorders associated with substance use disorders has become an important issue in drug policy and treatment provision. This is a result of the high prevalence of comorbidity, the complexity of treating it, and its association with poor treatment outcomes for those affected. This analysis explains what comorbidity is, its implications for care, types of service provision available in Europe and considers key issues for the future.

The association of harmful forms of illicit drug use with serious mental health problems is a key issue for national and international drug policy. The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) refers to 'comorbidity/dual diagnosis' as the 'temporal coexistence of two or more psychiatric disorders as defined by the International Classification of Diseases, one of which is problematic substance use' (EMCDDA, 2004). The relevance of the comorbidity of substance use and mental health disorders is related not only to its high prevalence but also to its difficult management and its association with poor outcomes for those affected. In comparison with patients with a single disorder, those with comorbid mental disorders and substance use disorders show a higher psychopathological severity (Langås et al., 2011; Stahler et al., 2009; Szerman et al., 2012) and increased rates of risky behaviour, which can lead to infection with diseases such as human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) and hepatitis C virus (Khalsa et al., 2008), psychosocial impairments (e.g. unemployment, homelessness) and criminal behaviour (Greenberg and Rosenheck, 2014; Krausz et al., 2013). Taking into account the burden on health and legal systems, psychiatric comorbidity among people with substance use disorders leads to high costs for society (DeLorenze et al., 2014; Whiteford et al., 2013).

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Substance use and mental health disorders: a complex relationship

The relationship between substance use and mental health disorders is complex and it is difficult to establish a clear



pathway between the two. The identification of psychiatric comorbidity is problematic, because the acute or chronic effects of substance abuse can mimic the symptoms of many other mental health disorders. Furthermore, a mental health disorder can have a negative impact on substance use (e.g. facilitate the start of substance use; increase the levels of drug use; facilitate risky patterns of drug use, etc.). Although convincing evidence supports a strong association between several mental health disorders and substance use disorders, the nature of this relationship may vary depending on the particular disorder (e.g. depression, psychosis, post-traumatic stress disorder) and the substance in question (e.g. alcohol, cannabis, opioids, stimulants). Overall, the coexistence of two or more clinical conditions in the same individual raises two major clinical questions:

1. Is there an underlying common causal pathway?
2. What is the impact of this coexistence of clinical conditions on clinical care?

Pathways to comorbidity

Below we list four (non-exclusive) hypotheses that can be used to explain comorbidity.

A. The substance use disorder and another mental health disorder may represent two or more independent conditions.

In this case, the combination may occur through chance alone or as a consequence of the same predisposing factors (e.g. stress, personality, childhood environment, genetic influences) that affect the risk for multiple conditions. That is, substance use disorders and other psychiatric disorders would represent different symptomatic expressions of similar pre-existing neurobiological abnormalities (Brady and Sinha, 2005). Research in basic neuroscience has demonstrated the key roles of biological and genetic or epigenetic factors in an individual's vulnerability to these disorders. But it has always

to be considered that genes and neural bases are intimately interconnected with the environment.

B. The psychiatric disorder other than substance use disorder is a risk factor for drug use and the development of a comorbid substance use disorder.

In this scenario, different situations can be considered. In the 'self-medication hypothesis' (Khantzian, 1985), the substance use disorder develops as a result of attempts by the patient to deal with problems associated with the mental health disorder (e.g. social phobia, post-traumatic stress disorder, psychosis). In this case, the substance use disorder might become a long-term problem, or the excessive use of alcohol or an illicit drug might abate when the pre-existing mental health disorder is addressed appropriately (Bizzarri et al., 2009; Leeies et al., 2010; Smith and Randall, 2012). However, the psychiatric disorder could increase the risk of heavy and repetitive use of substances, leading to the development of a substance use disorder that might continue even when the pre-existing psychiatric condition is appropriately treated or remits (Moeller et al., 2001).

C. The substance use disorder could trigger the development of a psychiatric disorder in such a way that the additional disorder then runs an independent course.

Drug use can function as a trigger for an underlying long-term disorder. This is probably the most important mechanism underlying the association between cannabis use and schizophrenia. It is well known that cannabis use in vulnerable adolescents can facilitate the development of a psychosis that runs as an independent illness (Radhakrishnan et al., 2014).

D. The temporary psychiatric disorder is produced as a consequence of intoxication with, or withdrawal from, a specific type of substance, also called a substance-induced disorder.

Temporary psychiatric conditions (e.g. psychosis with features resembling schizophrenia) may be produced as a consequence of intoxication with specific types of substances (e.g. stimulants, such as amphetamines and cocaine) or withdrawal conditions (e.g. depressive syndromes associated with the cessation of stimulant use). The latest evidence of similar patterns of comorbidity and risk factors in individuals with substance-induced disorder and those with independent non-substance-induced psychiatric symptoms suggests that the two conditions may share underlying causal or aetiological factors (Blanco et al., 2012). Furthermore, there are some studies showing that, in some cases, previous induced disorders have been diagnosed as independent disorders after a follow-up period. These findings suggest that substance-induced disorders may be a transitory state prior to an independent disorder (Magidson et al., 2013; Martin-Santos et al., 2010).

Terms and definitions

Defining comorbidity

The term 'comorbidity of substance use and mental health disorders' refers to the co-occurrence of a substance use disorder and another mental disorder in the same individual. Other terms used include 'co-occurring disorder', 'comorbid disorder' and 'dual diagnosis'. The EMCDDA has defined 'comorbidity', in the context of drug users, as a 'temporal coexistence of two or more psychiatric disorders as defined by the International Classification of Diseases, one of which is problematic substance use' (EMCDDA, 2004). The World Health Organization (WHO) defines 'dual diagnosis' as 'the co-occurrence in the same individual of a psychoactive substance use disorder and another psychiatric disorder' (WHO, 2010). Since 2012, the World Psychiatric Association (WPA) has had a new section for this issue, and has chosen to use the term 'dual disorders/pathology' (WPA, 2014).

Estimating comorbidity prevalence

There is a relatively high prevalence of comorbidity in substance users, with about 50 % having both a substance use and mental health disorder (EMCDDA, 2015, p. 69). In the absence of any European epidemiological study on the comorbidity of mental health and substance use disorders, the existing epidemiological data come from national or local studies in the European countries. These studies differ in their respective definitions of comorbidity, methodologies used, substances considered, sampling procedures, and geographical particularities concerning treatment availability and drug markets. Consequently, the data should be interpreted with caution.

A comprehensive overview of existing epidemiological studies conducted in the European countries in the last decade is found in the EMCDDA Insights 'Comorbidity of substance use and mental disorders in Europe'. The table below presents data from selected studies on the prevalence of comorbidity of mental health and substance use disorders in different settings and populations in the European countries.

Data from selected studies of general populations and specific settings

	Prevalence level
General population	<p>7 % of the adult population meeting the diagnostic requirements of an anxiety disorder comorbid with a substance use disorder (study of the general population carried out in France between 1999 and 2003) (Leray et al., 2011).</p> <p>21 % of female students (mean age 22) with lifetime comorbidity when nicotine dependence was included in the substance use disorder (Spanish female university students) (Vázquez, 2011).</p>
Drug treatment centres	<p>Up to 90 % of mood disorders (sample of 150 patients from therapeutic communities in nine European countries) (De Wilde et al., 2007).</p> <p>Comorbidity (range for current Axis I and II disorders) from 42 % in drug outpatient to 58 % in a therapeutic community or detox unit (several Spanish studies using the same instrument for assessing psychiatric comorbidity — the PRISM).</p>
Mental health hospitals	<p>Lifetime comorbidity in 1 208 psychiatric patients diagnosed with schizophrenia in three European countries: 19 % in France, 21 % in Germany, 35 % in the United Kingdom (Carrà et al., 2012).</p>
Prison	<p>Psychiatric comorbidity figures vary from 21 % among male prisoners in Perugia (Italy) (Piselli et al., 2016) to approximately 85 % among drug-addicted prisoners in Asturias (Spain) (Casares López et al., 2011).</p>
Homeless	<p>A follow-up study among 82 homeless people in Sweden found 74 % had a mental health disorder associated with misuse of alcohol and illicit drugs (Beijer et al., 2007).</p>

Comorbidity and clinical care

Effectively responding to the coexistence of substance use and mental health disorders represents a challenge for treatment services in several ways. Among the issues that make treatment complicated are those surrounding the assessment of clients, the types of combination treatments they require, and the specific context and settings within which services are provided to them.

Clinical assessment

Clinical assessment with the detection and diagnosis of the two symptoms is a fundamental requirement to increase the possibility of positive treatment outcomes of people suffering from psychiatric comorbidity. However, the complex link between mental health and substance use disorders can make the clinical diagnosis of comorbidity difficult. Principally, this challenge revolves around distinguishing between the

four causal or aetiological and neurobiological pathways into comorbidity discussed above. A number of instruments are used, with the main distinction being between screening and diagnostic instruments. Screening instruments are instruments that can be administered by an interviewer after a short training session, and which determine the initial needs for further follow-up on patients' disorders or symptoms, and/or provide an early indication of psychiatric comorbidity. Diagnostic instruments are more in-depth and longer instruments, usually administered by expert professionals with a deeper knowledge of psychopathology. The choice of instrument will depend on the context (clinical, epidemiological, research), the assessment objectives (single or multiple diagnosis), the time available to conduct the assessment and the expertise of staff.

Specific combinations and clinical recommendations

The association between mental health and substance use disorders has different characteristics depending upon the specific combinations of the two disorders.

The specific clinical aspects of the more common combinations of psychiatric comorbidity include mood, anxiety, psychotic, attention deficit and hyperactivity, eating and personality disorders. Psychiatric comorbidity has an impact on the clinical severity, psychosocial functioning and quality of life of patients with substance use disorders. The therapeutic approach to tackle dual diagnosis, whether pharmacological, psychological or both, has to take into account both disorders from diagnosis in order to choose the best option for each individual. Optimal management requires a good understanding of the efficacy, interactions and side effects of pharmacological and psychological treatments. The clinical aspects and corresponding treatment recommendations of the most common combinations of different types of substance use and mental health disorders are presented in Table below.

Specific characteristics of comorbid mental health and substance use disorders and clinical recommendations

Depression + substance use disorders	Psychosis + substance use disorders
<p>Description</p> <p>People with major depression show a higher vulnerability to develop substance use disorder; and substance users are at higher risk of developing major depression.</p> <p>The two conditions reinforce each other in a negative way: worse treatment outcomes, higher risk of suicide, greater need for healthcare.</p> <p>Clinical recommendations</p> <p>Treatment must be provided at the same time for both depression and substance use disorder, and ideally in an integrated system.</p> <p>Selective serotonin reuptake inhibitors are not efficacious in treating mental health disorders where comorbid substance use disorders are also present.</p> <p>Cognitive behavioural therapy (CBT) may help in some cases.</p> <p><i>Pharmacological and psychosocial treatments for depression and substance use disorders</i></p> <p>Antidepressant and psychosocial treatments were analysed in a comprehensive review (EMCDDA, 2015) which found that:</p> <ul style="list-style-type: none"> – Antidepressants have little effect on the maintenance of abstinence. <p>When an antidepressant is effective in treating acute depression, there is only a relative reduction in the use of the psychoactive substance.</p> <ul style="list-style-type: none"> – The impact of different psychotherapies, such as CBT, twelve-step facilitation and motivational interviewing, on major depression or on substance use disorders alone has been investigated without reaching a conclusive result. 	<p>Description</p> <p>Substances can precipitate a psychotic disorder in predisposed individuals.</p> <p>Some people have an underlying psychotic disorder that is exacerbated by concurrent use of substances.</p> <p>People can experience an acute psychotic episode in response to substance intoxication or withdrawal.</p> <p>The most common types of psychosis in substance users are schizophrenia and bipolar disorder.</p> <p>Clinical recommendations</p> <p>Guidelines are available for the use of antipsychotic drugs, but certain considerations must be taken into account:</p> <ul style="list-style-type: none"> – The level and type of substance misuse should be recorded. – The patient should be warned about potential interactions between substances of misuse and prescribed medication. <p><i>Integrated treatment for psychosis and substance use disorders</i></p> <p>Integrated treatment of psychosis and substance use disorders (i.e. combining psychological and antipsychotic treatments) was found in a comprehensive review (EMCDDA, 2015) to be:</p> <ul style="list-style-type: none"> – effective in significantly improving psychotic symptoms and substance use.

Anxiety + substance use disorders	Personality disorders + substance use disorders
<p>Description</p> <p>There are complex associations between the two disorders:</p> <ul style="list-style-type: none"> – Substances may be used for self-medication in case of anxiety. – Anxiety can be the result of intoxication or withdrawal. <p>Clinical recommendations</p> <p>Little research exists on effective treatment in this case.</p> <p>Psychological interventions have shown a positive effect, though are insufficient if used alone.</p> <p><i>Integrated treatment for anxiety and opioid disorders</i></p> <p>Combining CBT with antidepressants was found in a comprehensive review (EMCDDA 2015) to be:</p> <ul style="list-style-type: none"> – effective in improving the outcomes for comorbid opioid and anxiety disorders patients. 	<p>Description</p> <p>People with a personality disorder have more problematic symptoms of substance use disorders than those without a personality disorder.</p> <p>Antisocial and borderline are the more frequent personality disorders in illicit drug users.</p> <p>They are likely to participate in risky behaviours (sharing injecting equipment, risky sexual practices).</p> <p>They have more difficulties in remaining in, and compliance with, treatment.</p> <p>Clinical recommendations</p> <p>These patients should be offered the same range of treatment options as other patients.</p> <p>As high-risk behaviour may persist, they should also be given treatment aimed at ameliorating the impact of the personality disorder.</p> <p><i>Pharmacological treatments for personality and substance use disorders</i></p> <p>A comprehensive review (EMCDDA, 2015) found that:</p> <ul style="list-style-type: none"> – there is no evidence that any pharmacotherapy is particularly beneficial in the comorbidity of personality disorders with substance use disorders.
ADHD + substance use disorders	Eating + substance use disorders
<p>Description</p> <p>There has been increasing interest in attention deficit hyperactivity disorder (ADHD) and substance use.</p> <p>Comorbidity patterns differ between two subtypes: attention deficit and hyperactivity disorders.</p> <p>Clinical recommendations</p> <p>Prescription of stimulants for ADHD is common.</p> <p>There is no evidence that prescribed stimulants predispose people to future substance use, but misuse potential or non-compliance should be considered.</p> <p>Pharmacotherapies should be evaluated.</p> <p><i>Pharmacological treatment of ADHD and substance use disorders</i></p> <p>Pharmacological treatment of ADHD was found in a systematic review with meta-analysis (Cunill et al., 2015, 13 studies, N = 1271) to have:</p> <ul style="list-style-type: none"> – no effect in reducing substance use or improving retention in treatment, although the results found a small to moderate reduction of ADHD symptoms. 	<p>Description</p> <p>Strong evidence demonstrates that eating disorders and substance use disorders tend to co-occur.</p> <p>Clinical recommendations</p> <p>Recommended interventions of psycho-education on: aetiological commonalities, risks and sequelae of concurrent eating disorder behaviours and substance abuse.</p> <p>Necessary to build a collaborative therapeutic relationship.</p> <p>Dialectical behavioural therapy for this comorbid condition has proved to be effective.</p> <p><i>Behavioural therapy for eating and substance use disorders</i></p> <p>Dialectical behavioural therapy was found in a comprehensive review (EMCDDA, 2015) to be:</p> <ul style="list-style-type: none"> – effective in reducing both eating disorders and substance use disorders.

Treatment services and implementation in European countries

Although specific clinical recommendations have been identified for most combinations of substance use and mental health disorder, there is broad agreement in the scientific literature that the two disorders should be addressed simultaneously and with a multidisciplinary approach, involving drug and mental health professionals working together towards common goals. However, there is still a lack of consensus regarding the most appropriate treatment setting and the most adequate pharmacological and psychosocial strategies. This has negative consequences for the patients, who encounter difficulties in identifying and accessing the best treatment for their disorders.

Three models of services have been implemented in Europe to date:

1) The sequential model

In this model, the psychiatric and substance disorders are treated consecutively and there is little communication between services. Patients usually receive treatment for the most serious problems first, and, once this treatment is completed they are treated for their other problems. In this model the patient may be passed between services, increasing the risk of dropout and relapse from both services. For that reason evidence suggests that this model should be avoided when dealing with dual diagnosis patients.

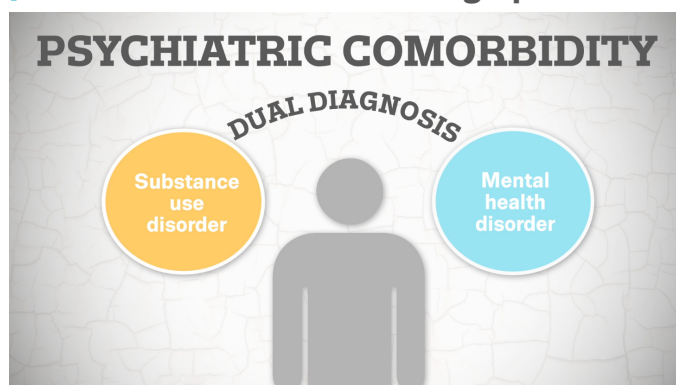
2) The parallel model

In this model, treatment of the two different disorders is undertaken at the same time, with drug and mental health services liaising to provide services concurrently. Although some level of coordination between the two systems may be achieved, the two treatment needs are often met with different therapeutic approaches and the medical model of psychiatry may conflict with the psychosocial orientation of drug services. A potential negative consequence of this model is the lack of overall coherence of the treatment plan, which often falls on the patient.

3) The integrated model

In this model, treatment is provided within a psychiatric or drug treatment service or a special comorbidity programme or service. Cross-referral to other agencies is avoided. Treatments include motivational and behavioural interventions, relapse prevention, pharmacotherapy and

Interactive element: motion graphic



Video on psychiatric comorbidity available on the EMCDDA website:
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social approaches. Although integrated treatment has been promoted as a way of reducing the fragmentation, duplication and risk of ‘falling between the gaps’ that may arise from sequential or parallel treatment models, the evidence supporting this is limited and is usually based on non-European approaches.

Conclusion

Psychiatric comorbidity is highly prevalent among substance users and is associated with increased levels of clinical and social severity. It has been associated with a poor prognosis of both psychiatric and substance use disorders and with fewer chances of recovery. At present there remains a lack of consensus regarding the most appropriate treatment settings and pharmacological and psychosocial strategies. This review notes that comorbid patients often have difficulties in accessing, and being coordinated within, required mental health and substance abuse services. The main barriers to the treatment are the separation of mental health and drug use treatment networks in most European countries, and the fact that treatment services may lack sufficient combined expertise to treat both types of disorders.

Psychosis and cannabis use disorders

One of the most commonly used substances by individuals with psychosis is cannabis, and individuals with schizophrenia or bipolar disorder can receive an additional diagnosis of cannabis dependence (EMCDDA, 2015, p. 51).

The associations between cannabis and psychosis can vary as follows:

- Cannabis can induce or cause a temporary psychotic state that clears within several days in individuals with no prior diagnosis of psychosis.
- Cannabis can trigger psychosis in individuals who are at risk of psychosis.
- Cannabis can worsen psychotic symptoms in those individuals who have a current diagnosis of psychosis.

Furthermore, cannabis use is associated with an earlier onset of psychosis and an increasing inpatient readmission risk in first-episode psychotics. People with psychosis generally do not use cannabis in a self-medicating manner to reduce psychotic symptoms. Reported reasons for use include social isolation, lack of emotion or feeling for others, lack of energy, difficulty sleeping, depression, anxiety, agitation, tremors or shaking and boredom. These symptoms may occur as part of the psychotic illness or may be due to additional anxiety or depressive illnesses or to the side effects of medication.

People with psychotic disorders should avoid cannabis and be counselled against its use. Brief interventions should be



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offered for people with psychosis who may be using even small amounts of cannabis. In an acute psychotic episode caused by cannabis use, cessation of use will result in the resolution of the episode. Duration of cannabis use in people with bipolar disorder is associated with the duration of mania (EMCDDA, 2015, p. 51).

Hall conducted a review of twenty years of research into the adverse effects of recreational cannabis use. Among the findings was that the risk of psychotic symptoms and disorders doubles if cannabis users started using the drug in their mid-teens and is amplified by having a personal or family history of psychotic disorders (Hall, 2015).

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